

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN EDWARD COOK and MURRAY FRANCIS BUSATO

Appeal No. 2002-0797
Application No. 08/900,977

ON BRIEF

Before ABRAMS, STAAB, and BAHR, *Administrative Patent Judges*.

STAAB, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-5, 7-22 and 24-35. Claims 6 and 23, the only other claims currently pending in the application, have been withdrawn from consideration pursuant to 37 CFR § 1.142(b) as not being readable on the elected species.

Appellants' invention pertains to an electrically operated fluid flow control valve and a pressure regulator for use in automotive vehicle evaporative emission control systems for the controlled purging of a fuel vapor collection canister to the

Appeal No. 2002-0797
Application No. 08/900,977

intake manifold of the vehicle's engine. A copy of the appealed claims appears in the appendix to the brief.¹

The references relied upon by the examiner in the final rejection are:

Cook (Cook '785)	5,115,785	May 26, 1992
Cook et al. (Cook '082)	5,413,082	May 9, 1995

Claims 1-5, 7-22 and 24-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cook '785 in view of Cook '082.

Reference is made to appellants' brief (Paper No. 20) and to the final rejection² and answer (Paper Nos. 14 and 21) for the respective positions of appellants and the examiner regarding the merits of this rejection.

Discussion

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532. 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) and *In re Oetiker*, 977 F.2d 1443, 1445,

¹The appendix to the brief also includes claims 6 and 23 which, as noted above, have been withdrawn from consideration.

²The examiner has expressly incorporated the grounds for rejection as set forth in the final rejection into the answer. See page 3 of the answer.

Appeal No. 2002-0797
Application No. 08/900,977

24 USPQ2d 1443, 1444 (Fed. Cir. 1990). A *prima facie* case of obviousness is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) and *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). If the examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. See *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Representative claim 1 is directed to the combination of a electric-operated pressure-regulated fluid flow control valve and a pressure regulator. Claim 1 states that the fluid flow control valve

has a frequency response characteristic which renders the valve mechanism [of the control valve] incapable of faithfully tracking the fundamental frequency of an electric control signal whose fundamental frequency is greater than a predetermined frequency that, when applied in control of the valve mechanism, positions the valve mechanism to a position corresponding to a most recent time average of the electric control signal free of any significant pulsing of the valve mechanism.

Claim 19, the only other independent claim on appeal, contains similar language.

Cook '785, the primary reference in the standing rejection of the appealed claims, is directed to a system for purging of a

fuel vapor collection canister to the intake manifold of the vehicle's engine. According to Cook '785, it was difficult at the time of the Cook '785 patent to design a purge system that possessed both precise low-flow control and the capacity to handle much larger purge flow rates (col. 1, lines 30-43). With reference to Figure 1, Cook '785 proposes to overcome this deficiency by providing a purge system that includes an electrically controlled fluid flow control valve 12 disposed in a first passageway 38 between the collection canister and the intake manifold and a normally-closed, vacuum-actuated valve 14 disposed in a second passageway 40 in parallel with the first passageway between the collection canister and the intake manifold. As explained by Cook '785 in the paragraph spanning columns 1 and 2, the normally-closed vacuum-actuated valve 14 operates to open the second passageway to fluid flow only when the control signal for the control valve 12 exceeds a certain minimum. Thus, when higher fluid flow is demanded, the vacuum-actuated valve 14 opens to allow the second passageway 40 to route a portion of the fluid flow around the control valve 12. Figure 5 illustrates a further embodiment wherein the passageway that contains the electrically controlled fluid flow valve also includes a pressure regulator 62B "for the purpose of

compensating for changes in intake manifold vacuum such that over the effective range of the pressure regulator the purge flow through the solenoid-actuated valve is rendered substantially unaffected by changes in intake manifold vacuum" (col. 4, lines 53-58).

Cook '082 also pertains to a system for purging of a fuel vapor collection canister to the intake manifold of the vehicle's engine. Cook '082 states (col. 1, lines 23-37) that certain purge systems are adversely affected by changes in intake manifold vacuum that occur during normal operation of the vehicle. Cook '082 proposes to configure the valve mechanism such that sonic flow through the valve is maintained, whereby "such a choked flow condition makes the valve rather insensitive to variations in manifold vacuum, accomplishing a vacuum regulating function without the inclusion of an additional vacuum regulating valve" (col. 3, lines 49-53).

In rejecting the appealed claims, the examiner finds (final rejection, page 2) that the Figure 5 purge system of Cook '785 comprises a pressure regulator (element 62B) downstream of an electrically controlled fluid flow valve (element 12B). The examiner further finds (final rejection, page 2) that Cook '082 teaches "that it is known to use a linear solenoid valve to

regulate vapor flow to the engine" and also "that is it known to use such a valve in combination with a regulator downstream of the valve to eliminate non-linear flow due to pressure fluctuations." Based on these findings, the examiner concludes that it would have been obvious "to modify Cook ('785) by constructing the solenoid valve as taught by Cook ('082, prior art) since the latter taught that it was known to use such a valve in combination with a pressure regulator" (final rejection, page 3). Implicit in the above is the examiner's position that the control valve 12B of the Figure 5 purge system of Cook '785 does *not* correspond to the claimed control valve, and that when the Figure 5 purge system of Cook '785 is modified by constructing the control valve 12B thereof "as taught by Cook," the modified Figure 5 purge system would include a fluid flow valve and pressure regulator combination that corresponds in all respects to the subject matter of claim 1.

We have carefully reviewed appellants' invention as described in the specification, the appealed claims, the prior art applied by the examiner and the respective positions advanced by appellants in the brief and by the examiner in the final

Appeal No. 2002-0797
Application No. 08/900,977

rejection and answer. As a consequence of this review we conclude that the standing rejection cannot be sustained. Our reasons follow.

Our first difficulty with the standing Section 103(a) rejection is that the examiner has *not* specifically stated the difference or differences in claim 1 over the applied references, and in particular Cook '785, as called for in *MPEP* Section 706.02(j). In this regard, although it would appear from the examiner's above quoted grounds of the rejection as found in the final rejection that the examiner considers that Cook '785 does not disclose a fluid flow control valve having the particular frequency response characteristic called for in claim 1, portions of the **"Response to Argument"** section of the answer imply that the examiner actually relies on Cook '082 for a teaching of *operating* the fluid flow control valve at a frequency that renders the valve mechanism of the control valve incapable of faithfully tracking the control signal. However, because the appealed claims are directed to the combination of a fluid flow control valve and a pressure regulator and *not* a method of operating such a combination, the frequency of the control signal

utilized to operate the prior art systems is simply not relevant to the *claimed* subject matter.³

Second, it is not clear precisely what teachings of Cook '082 the examiner is relying upon. More particularly, it is not clear whether the examiner is relying on the teachings of Cook '082 concerning (1) the improved sonic flow purge valve that comprises the invention of Cook '082, or (2) the purge valves of systems such as those discussed in the "**BACKGROUND**" section of Cook '082 in existence at the time of patentee's invention, or (3) both (1) and (2).

Third, it is not clear what the examiner means by terms such as "linear response," "linear flow" and "linear solenoid," as used, for example, in the statement on page 3 of the final rejection that

both applicant's [sic, applicants'] valve and the system of Cook ('785) use a pressure regulator, downstream of the solenoid to create the linear response needed. While it is true that Cook ('082) can produce non-linear flow as noted, the claims do not require linear flow but merely a linear solenoid valve which is shown by Cook ('082).

³Appellants' recurring argument (see, for example, the sentence spanning page 6 and 7 of the brief) that there is no teaching in the applied prior art of utilizing a control signal of a particular frequency is *not* relevant to the obviousness issues presented here in that the appealed claims are not directed to a method of operating a purge system.

Fourth, the examiner's discussion on pages 5-6 of the answer of the relevance of the mode of operation depicted in the graphs of Figures 2 and 3 of Cook '082 is not understood, in particular with respect to how these drawings might be viewed as explicitly teaching that the control valve of Cook '082 is incapable of faithfully tracking the fundamental frequency of the electric control signal during at least most modes of operation.

Fifth, to the extent the examiner's rejection is founded on the notion that it would have been obvious to replace the fluid flow control valve of Cook '785 with a sonic flow control valve of the type taught by Cook '082, we do not consider the rejection to be well founded. Cook '082 teaches that the improved sonic flow control valve disclosed therein improves upon prior art purge systems (such as the earlier purge system of Cook '785) by eliminating the need for a downstream pressure regulator (col. 1, lines 63-66; col. 3, lines 49-53; col. lines 1-13). Hence, if the skilled artisan were to follow the teachings of Cook '082 to their logical conclusion in replacing the fluid flow control valve 12B of Cook '785, said artisan would eliminate the pressure regulator 62B because Cook '082 teaches that it would no longer

be needed. This, however, would not result in the claimed invention, which requires a fluid flow control valve *and* a downstream pressure regulator.

For the reasons discussed above, it is our determination that the examiner has not made out a *prima facie* case of obviousness of claims 1-5, 7-22 and 24-35.⁴ It follows that we shall not sustain the standing rejection of the appealed claims.

⁴The Figure 5 embodiment of Cook '785 appears to us to correspond to the combination set forth in claim 1, except perhaps for the requirement concerning the "frequency response characteristic" of the control valve. In the event of further prosecution, the examiner may wish to consider whether the control valve of Cook '785 inherently possesses the claimed "frequency response characteristic," such that there would be no difference between the claimed control valve and pressure regulator combination and the control valve and pressure regulator combination disclosed in Figure 5 of Cook '785 at elements 12B and 62B, respectively.

Appeal No. 2002-0797
Application No. 08/900,977

The decision of the examiner is reversed.

REVERSED

NEAL E. ABRAMS)	
Administrative Patent Judge)	
)	
)	
)	
LAWRENCE J. STAAB)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
)	
JENNIFER D. BAHR)	
Administrative Patent Judge)	

LJS:hh

Appeal No. 2002-0797
Application No. 08/900,977

MORGAN LEWIS & BOCKIUS, LLP
1111 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC 20004